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Nematodes Attacking Plants Above the Soil Surface

CRIMP (Foliar Nematode on Strawberry)

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Crimp, first noted in 1901, has also been called French bud, white bud, red bud, briar bud, spring dwarf, red plant, possum's ear, frenching, male plant, and wild plant.

Distribution: The disease has been reported from Florida, Louisiana, California, North Carolina, Tennessee, Arkansas, Massachusetts, New York, Kentucky, Maryland, Delaware, Pennsylvania, Continental Europe, and Great Britain.

Causal agent: Two species of nematodes incite crimp.

a) Spring crimp affecting strawberry plants in the spring is incited by Aphelenchoides fragariae.

b) Summer crimp incited by Aphelenchoides besseyi appears just after the start of hot summer weather. It is most severe during the rainy season from June to September. Nematode populations decline when weather turns cool.

Symptoms: Young plants are dwarfed and present a spider-like appearance. Leaves appear crimped (Fig. 1), twisted, crinkled, and are a darker green than normal. A reddish color appears on the leaf edges and veins. Leaf chlorosis has also been attributed to this pest. Leaves become more brittle than normal. Tips of young leaves and stipules of older plants dry up and turn brown. Petioles are short, thick, less pubescent than usual, and have a reddish cast. Under severe attack, the main bud may be killed.

Fig. 1. Young strawberry plants affected with crimp.

Damage: Plant production in nursery fields are reduced in numbers as high as 75 percent of the crop in some fields. Yield and quality of the fruit are reduced (Fig. 2). Leaf and primordia are injured while folded in the bud.

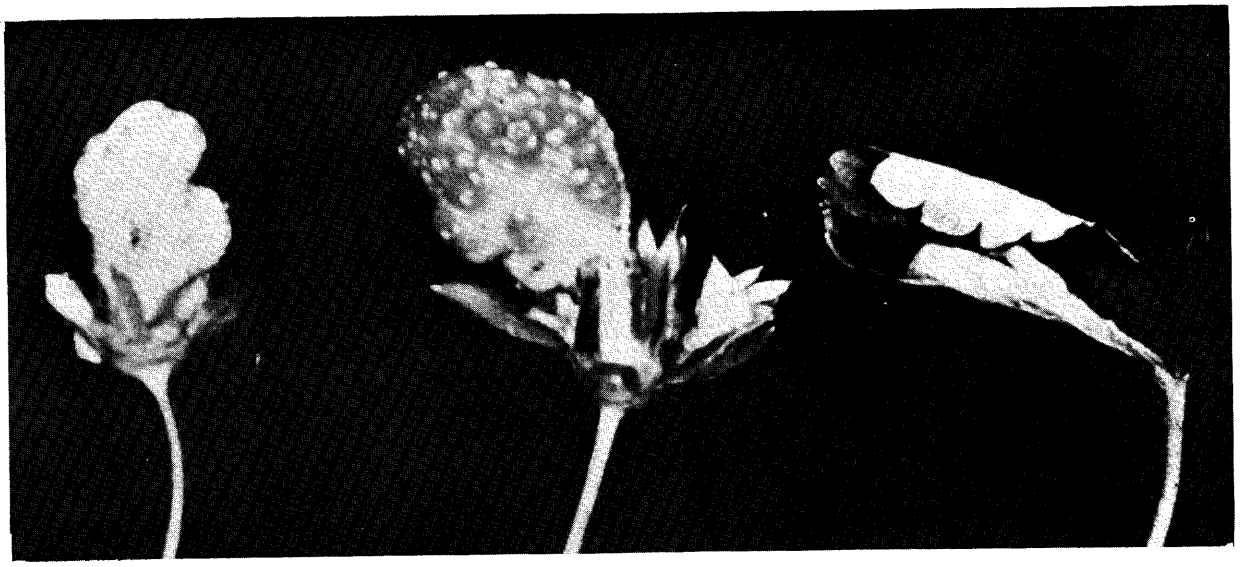

Fig. 2. Right: A single leaf distorted by crimp. Left: Fruit distorted by the summer crimp nematodes (After Slack et al).

Habit: (Summer crimp nematode) It takes about two weeks for an egg to develop into a mature nematode. The nematodes feed ectoparasitically on the bud and leaf axils, moving across the plant surface when it is wet with dew or rain. As cool weather approaches, populations of summer crimp nematode decline. Some survive in the bud and some in the soil. Nematodes live for long periods of time in the soil possibly feeding on fungi in the absence of strawberry plants. New infections may occur the next year from the soil or from infected mother plants. Areas free of the pest are infected when planting stock is obtained from infected areas. Heavy rains may also disseminate this pest. Infestations have been more severe in low areas of infested fields.

Control: Infested buds have been denematized by immersing potted plants in hot water for 20 minutes at 48C. The prime recommendation is to plant clean plants in noninfested soil. Land known to be infested with foliar nematodes should not be used for strawberry production unless treated with a nematocide.

References

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Slack, D. A., C. Seymour, H. Fields, and J. P. Fulton. 1957. Summer dwarf of strawberry. Plant Disease Reporter 41(5):398-401.